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UCRL-TR-234860

LLNL Facility Screening Report (SCR) for B362

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LLNL Facility Screening Report (SCR) for B-362

Facility Name

Lead Preparer: Greg Cooper	**Date Performed:** 8/28/2007

Facility Description

Briefly describe facility use, physical structure, location and attach a building layout:
Building 362 (3,749 gross square feet) is a single-story concrete block structure with a built-up roof over steel joists. A boiler/chiller/electrical room is located in the West center portion of the building. B-362 is located near the center of the Laboratory at the corner of West Inner Loop Road and Fifth Street and is approximately 859 meters (2,818 feet) from the nearest site boundary.
B-362 is houses laboratories supporting biological activities including the use of radiological tracers.

Define facility type:	**Owner Organization:**
Check: ☒ Single Structure or Area: (B/Tr/A) B-362 ☐ Complex of Buildings: Designation _____ ☐ Segment* of Bldg or Complex: _____ Seg.# _____ *Attach justification for segmentation	Directorate: Chemistry, Materials, and Life Sciences Facility AD: Tomas Diaz de la Rubia

Final Facility Classification: (Check)

☒ LSI ☐ Low ☐ Moderate ☐ High ☐ Nuclear Facility ☐ Accelerator

Concurrence Signatures for Facility Classified as LSI:**

Lead Preparer: G A Cooper Date: 8/30/07
AB Section Leader or designee: C.M. van Warmerdam Date: 8/30/07
ES&H Team Leader or designee: M. Wheeler DTL Date: 8/30/07

Approval Signature for Facility Classified as LSI:**

Facility Management: G A Cooper Date: 8/30/07

Supporting Documentation Appended	**Comments:**
Check as appropriate: ☐ Justification for Segmentation ☐ Chemical Hazard List ☒ Radiological Hazard List ☐ Explosive Hazard List ☒ Building Layout ** Signatures are not required on this form for facilities classified as Low, Moderate or High. Approval signatures for these are on the cover of the Tier 2 or Tier 3 SBDs.	

Identification of Operations, Inventories, and Hazards

List key operations that are conducted within the facility:

Research involving analytical chemistry and microbiology.

Work with small amounts of radioactive tracer elements (C-14 and tritium)

Nearby Facility threats?

Did Facility Management receive any notifications of credible external threats from nearby LLNL facilities (>TEEL2 after mitigation)? yes ☐ no ☒

If yes, list the following for each notification:

Source Facility:	Facility Contact(s):	Phone # (s):

Describe hazard(s) associated with nearby facility:

Hazard Identification Table

Check the hazard types found in the facility.

Not Authorized	Authorized		
☐	☒	Biological Hazards	Complete block I, below
☐	☒	Chemical Hazards	Complete block II, below
☒	☐	Explosive Hazards	Complete block III, below
☐	☒	Radiological Hazards	Complete block IV, below
☐	☒	Industrial Hazards	Complete block V, below

I. Biological Hazards

Check BioHazard Type

☒ **Non-Select Agents**

Check highest group in facility:

- ☐ RG1 Agents
- ☒ RG2 Agents
- ☐ RG3 Agents

☐ **Select Agents**

Select highest group in facility:

- ☐ RG1 Agents
- ☐ RG2 Agents
- ☐ RG3 Agents

☐ Other BioHazards (e.g., nucleic acid, lab animals, contaminated needles/sharps, animal/human tissues & fluids)

☐ Materials covered under OSHA Bloodborne Pathogens Standard - 29 CFR 1910.1030

Applicable Control Level for Biohazards

Check highest Biological Safety Level (BSL) in facility, as applicable:

☐ BSL-1 ☒ BSL-2 ☐ BSL-3 and/or

☐ Bloodborne Pathogens Standard (Note: AB classification = LSI)

II. Chemical Hazards

Check ChemHazard Type

☒ Flammable, volatile or fuming

☐ Toxic materials (acutely toxic, toxic, bio-derived toxin, systemic toxin, toxic gases)

☒ Corrosives/irritants

☐ Reactive materials (e.g., air/water sensitive; pyrophoric; thermally, shock, or friction sensitive; perchlorate)

☒ Carcinogens, mutagens, reproductive hazards

☒ Pesticides

☐ Beryllium

☐ Materials of special concern (e.g., alkali metals, fluorine, asbestos, lead, mercury, PCB)

☐ Other regulated metals (e.g., chromium, copper, nickel, zinc)

☐ Other:_____

Do any chemicals exceed LSI classification?

☐ YES ☒ NO

For chemicals that exceed LSI classification, attach maximally planned chemical inventory listing.

III. Explosive Hazards

Check

☐ Primary High Explosives

☐ Secondary High Explosives

☐ Propellants/Low Explosives

☐ Firearms Ammunition

Do any of the explosive types checked above have any of the following associated hazards?

- ☐ Fragmentation Hazards (Primary Fragments)
- ☐ Group L Explosives

Attach maximally planned inventory listing for each explosive type checked.

IV. Radiological Hazards

Check Sum of Ratio

☒ <1 of RQ thresholds (40 CFR 302.4 Appendix B)

☐ >1 of RQ thresholds < Cat. 3 Thresholds (DOE-STD-1027-92, Table A.1)

☐ >Cat. 3 Thresholds (DOE-STD-1027-92, Table A.1) < Cat. 2 Thresholds (DOE-STD-1027-92, Table A.1)

Does facility contain the following?

Radiation Generating Devices:

☐ Radiation generating devices not covered by DOE O 420.2A (e.g., X-rays, Electron Beams, Radiography Equipment): class _____

☐ Radiation generating devices covered by DOE O 420.2A (Accelerators).

Exempted materials:

☐ Radioactive Certified Sealed Sources

☐ Rad. In Type B Containers with current certificates of compliance

☐ Either in quantities>Cat. 3 thresholds (DOE-STD-1027-92, Table A.1)

Attach listing of maximally planned radiological materials inventory.

V. Industrial Hazards			
Check if hazard present	**Industrial Hazard**	**Examples of industrial hazard(s) for each general category. (Select Industrial Hazards found.)**	**List industrial hazard(s) that could directly impact the public (fence-line) or colocated worker (100 m).**
☒	Electrical	☐ Battery banks, ☐ Cable runs, ☐ Diesel generators, ☒ Electrical equipment, ☐ Heaters, ☐ High voltage (> 600V), ☒ Motors, ☐ Power tools, ☒ Pumps, ☒ Service outlets, ☒ Fittings, ☒ Switchgear, ☒ Transformers, ☐ Capacitors, ☐ Magnetic fields, ☐ Transmission lines, ☐ Wiring/underground wiring, ☐ Other:_____.	None
☒	Thermal	☒ Boilers, ☒ Bunsen burner/hot plates, ☒ Electrical equipment, ☒ Electrical wiring, ☐ Engine exhaust, ☐ Furnaces, ☐ Heaters, ☐ Lasers, ☐ Steam lines, ☐ Welding surfaces, ☐ Welding torch, ☐ other:_____	None
☒	Kinetic	☐ Acceleration/deceleration, ☒ Bearings, ☒ Belts, ☒ Carts/dollies, ☒ Centrifuges, ☐ Crane loads (in motion), ☒ Drills, ☒ Fans, ☐ Firearm discharge, ☐ Fork lifts, ☐ Gears, ☐ Grinders, ☒ Motors, ☐ Power tools, ☐ Presses/shears, ☐ Saws, ☐ Vehicles, ☐ Airplane, ☐ Vibration, ☐ Other:_____	None
☒	Potential (pressure)	☐ Autoclaves, ☒ Boilers, ☐ Coiled springs, ☐ Furnaces, ☒ Gas bottles, ☐ Gas receivers, ☒ Pressure vessels, ☒ Vacuum vessels, ☒ Pressurized system (e.g., air), ☐ Steam header and lines, ☐ Stressed members, ☐ Other:_____	None
☒	Potential (height/mass)	☐ Cranes/hoists, ☐ Elevated doors, ☐ Elevated work surfaces, ☐ Elevators, ☐ Lifts, ☐ Loading docks, ☐ Mezzanines, ☐ Floor pits, ☒ Scaffolds and ladders, ☐ Stacked material, ☐ Stairs, ☐ Other:_____	None
☒	Internal Flooding Sources	☒ Domestic water, ☒ Fire suppression piping, ☒ Process water, ☐ Other: _____	None

Hazard Classification	
Select the appropriate hazard level from the dropdown menu:	
Biological	**LSI**
Chemical	**LSI**
Explosive	**Not authorized**
Radiological materials	**LSI**
Radiation generators	**Not authorized**
Industrial	**LSI**

Controls for LSI Hazards: (Controls for Low, Moderate and High hazards are addressed in Tier 2 or Tier 3 SBDs.)

Briefly describe controls developed to assure that facility operations do not exceed the facility classification:

1. Biological operations will be limited to those that can be performed at BSL-2 controls or less. All biological activities shall be reviewed via the IWS process and the LBOC prior to starting.

2. Inventories of individual chemicals shall be maintained below the lesser of the Q-values Q1 at 100 meters or Q0 at 600 meters.

3. CMLS manages its programmatic inventory of radiological materials to maintain and comply with a Facility Safety Basis Envelope (SBE) of LSI for B362. A Radioactive Materials Inventory System is maintained by facility management. It is reconciled as frequently as necessary to ensure that the facility radiological inventory remains below the Final RQ limits in 40 CFR 302.4 Appendix B on a cumulative sum-of-the-ratios basis for all isotopes. Inventory reconciliation more frequent than annual shall be performed if the inventory exceeds an administrative control level of 75% of the RQ limits. Prior to receipt, additions are verified not to cause the radiological inventory to exceed the RQ limits. Additions not fully characterized are estimated using field measurements and owner knowledge.

4. Industrial hazards are managed by facility management at the LSI level.

Other controls?
Briefly describe:

None

List what document(s) through which the controls will be implemented:

CMLS-332, "Chemical Management Plan".
CMLS-406, "Radioactive Materials Inventory Management Plan".
Individual Integration Worksheets (IWSs).

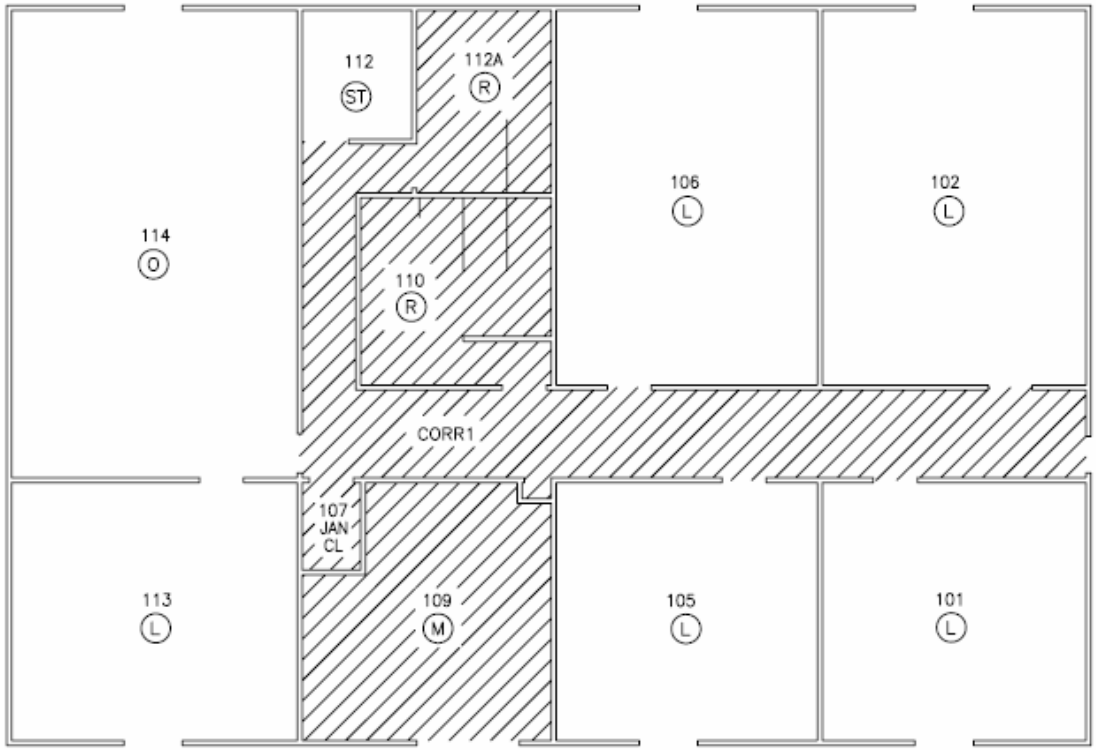
B362 RADIOLOGICAL INVENTORY

Nuclide	Initial Quantity [activity or mass]	Units	Initial Activity [Ci]	Reference Date	Specific Activity [Ci/g]	Halflife [sec]	Decay Corrected Activity [Ci]	Final RQ [Ci]	RQ Fraction	Cat III Threshold [Ci]	Cat III Fraction
C-14	1.86E+04	uCi	1.86E-02	04/11/07	4.46E+00	1.81E+11	1.86E-02	10	1.86E-03	4.20E+02	4.44E-05
H-3	1.17E+04	uCi	1.17E-02	04/11/07	9.65E+03	3.90E+08	1.15E-02	100	1.15E-04	1.00E+03	1.15E-05
I-129	1.00E+00	uCi	1.00E-06	04/11/07	1.77E-04	4.95E+14	1.00E-06	0.001	1.00E-03	6.00E-02	1.67E-05

Nuclide	Decay Corrected Activity [Ci]	RQ Fraction	Cat III Fraction
C-14	**1.86E-02**	**1.86E-03**	**4.44E-05**
H-3	**1.15E-02**	**1.15E-04**	**1.15E-05**
I-129	**1.00E-06**	**1.00E-03**	**1.67E-05**
Grand Total	**3.01E-02**	**2.98E-03**	**7.25E-05**

Inventory table represents the typical types and quantities of nuclides used within this facility, the exact types and quantities may change somewhat over time, however, total nuclide inventory will be maintained within LSI classification limits

NOTE:
ROOM DESIGNATIONS FOR CORRIDORS, STAIRWAYS AND NON-BUILDING SPACE ARE FOR CROSSREFERENCE TO AREA SHEETS ONLY.



NORTH

Scale: 1/8" = 1'-0"

0 5 10 20

REV	DESCRIPTION	DATE	DWN	APPR
A	FIMS UPDATE	12/97	W2	

DO NOT REVISE THIS DRAWING

ALL MODIFICATIONS AND REVISIONS TO THIS DOCUMENT MUST BE REPORTED TO THE P.E./CADDS FACILITY (EXT. 2-0491)

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PLANT ENGINEERING

BUILDING 362

Facility Name: BIOLOGY & BIOTECH RESCH

CONTROLLED

FACILITY KEYPLAN
PKB1996-362-001BA